



FIRE HALL 4 ROOF REPLACEMENT

425 WEST COLLEGE STREET
DULUTH, MINNESOTA 55812

OWNER:
CITY OF DULUTH
PROPERTY & FACILITIES MGMT
1532 W MICHIGAN STREET
DULUTH, MINNESOTA 55806

ARCHITECT:
SCALZO ARCHITECTS, LTD.
1901 SOUTH STREET
DULUTH, MINNESOTA 55812

ENGINEER:
NORTHLAND CONSULTING ENGINEERS
102 SOUTH 21ST AVENUE WEST SUITE #1
DULUTH, MINNESOTA 55806

SCALZO ARCHITECTS, LTD.
1901 South Street
Duluth, Minnesota 55812
Tele: 218.722.4319
Fax: 218.722.3535

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

WILLIAM B. SCALZO
DATE: MARCH 6, 2015
LICENSE NO: 18130

Northland
Consulting Engineers L.L.P.
Structural, Civil and Forensic Engineering Services
102 South 21st Ave. West Suite #1
Duluth, Mn. 55806-2018
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TITLE SHEET
LOCATION MAP
INDEX TO DRAWINGS

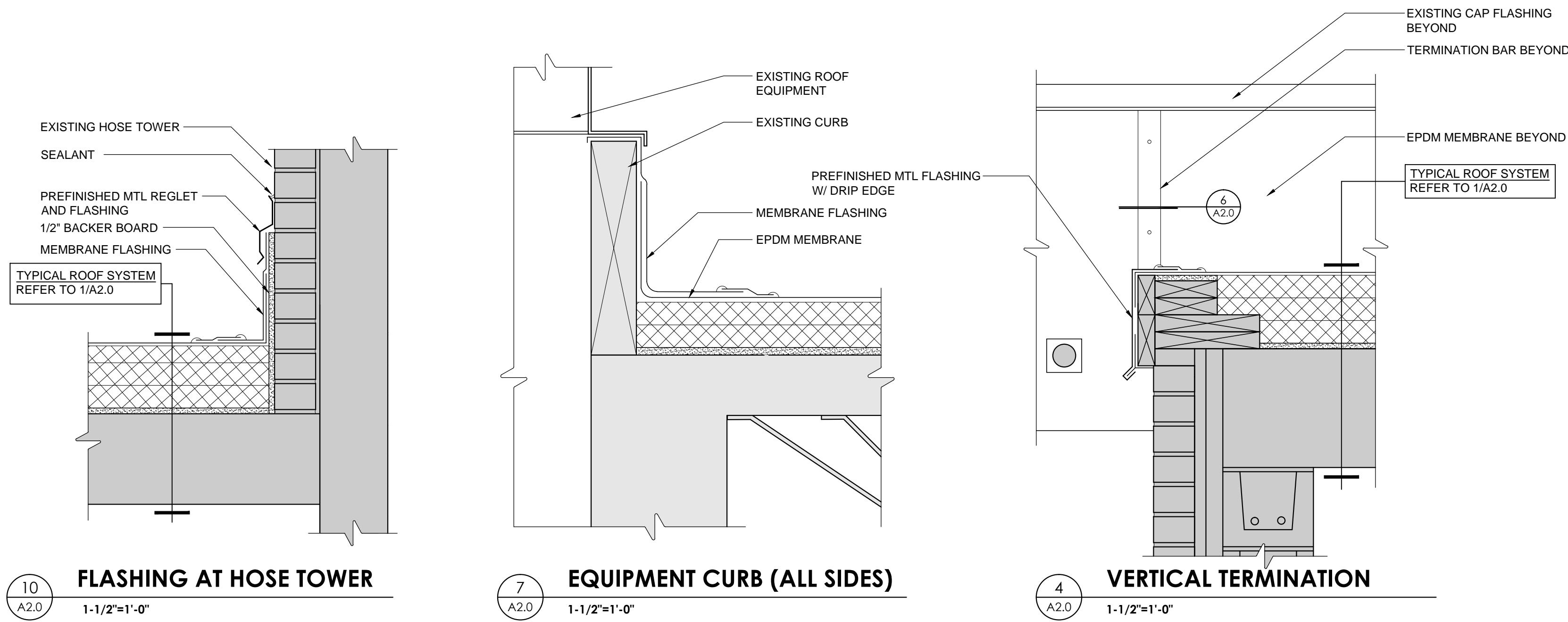
REVISIONS:

DATE: MARCH 6, 2015
DRAWN: TJB
CHECKED: WBS
PROJECT: 1511

FULL SCALE

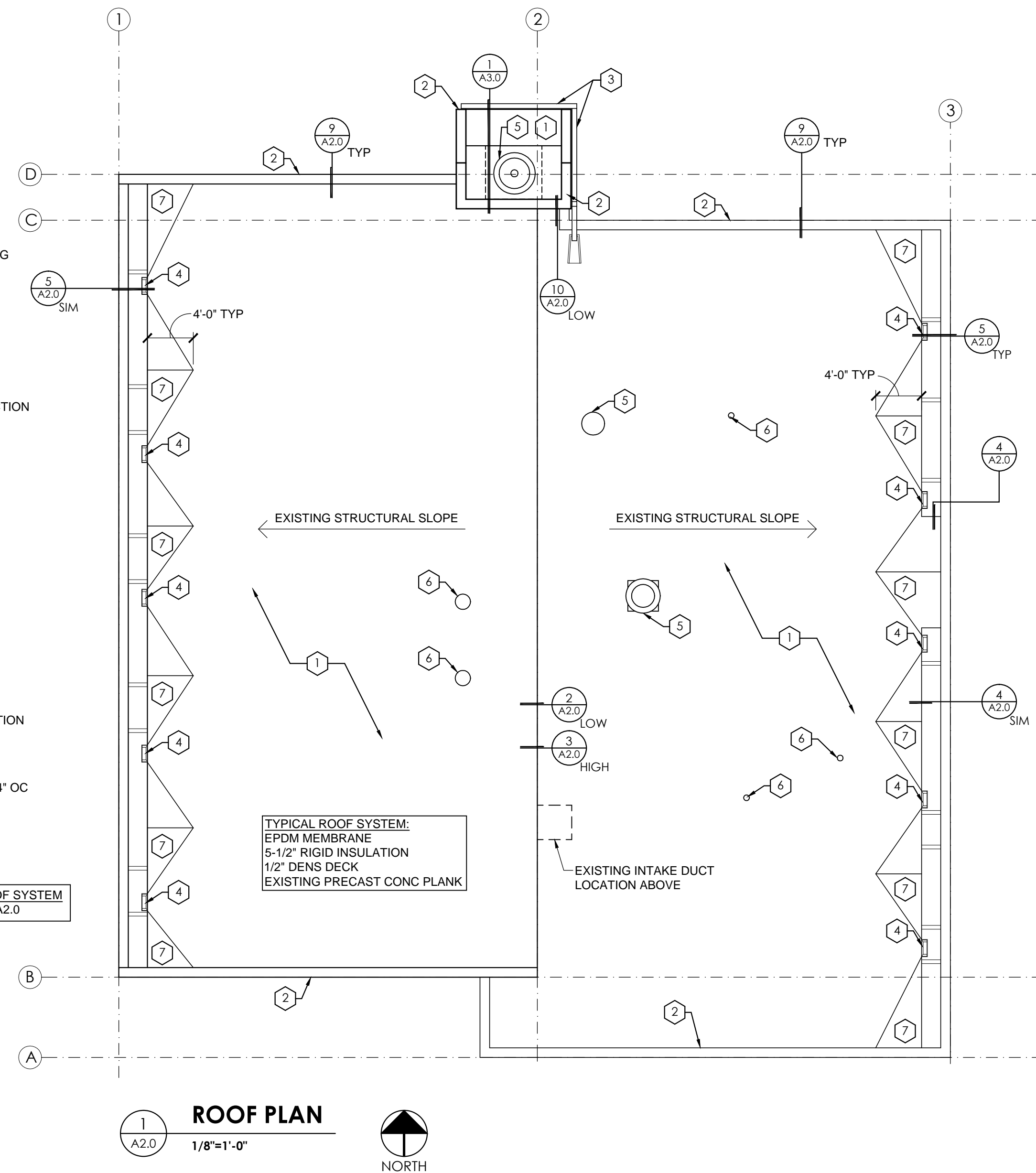
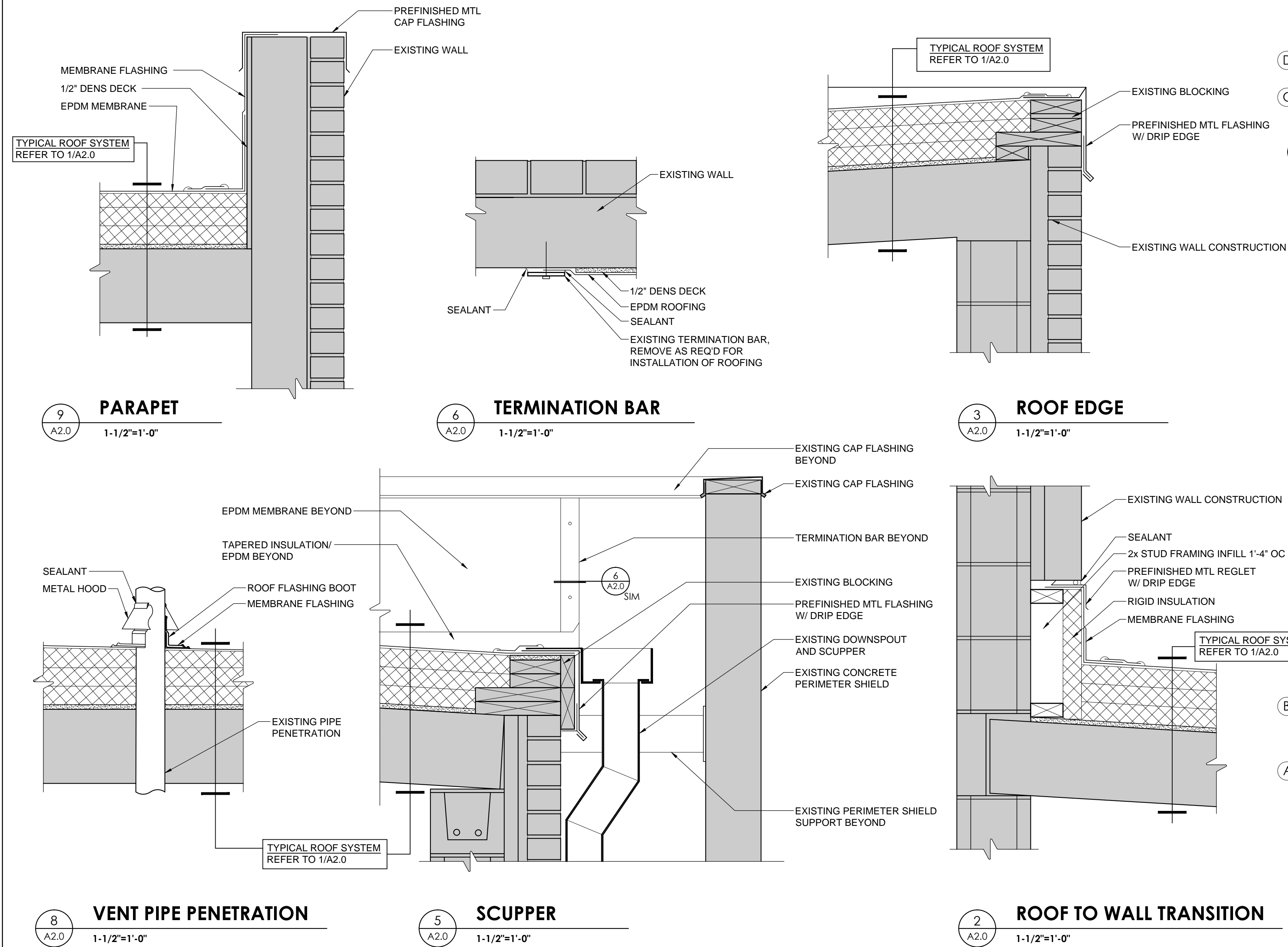
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- KEYED ROOF PLAN NOTES:**
- 1 REMOVE EXISTING ROOFING SYSTEM; INCLUDING UNDERLAYMENT/ SHEATHING, RIGID INSULATION, AND EPDM MEMBRANE TO EXPOSE THE EXISTING CONCRETE PLANKS.
 - 2 REMOVE EXISTING METAL CAP FLASHING.
 - 3 EXISTING GUTTER SYSTEM & DOWNSPOUT TO REMAIN. SALVAGE FOR REINSTALLATION.
 - 4 EXISTING SCUPPER & DOWNSPOUT TO REMAIN.
 - 5 EXISTING ROOF EQUIPMENT TO REMAIN - SEE DETAIL 7/A2.0 TYP.
 - 6 EXISTING VENT PIPE TO REMAIN - SEE DETAIL 8/A2.0.
 - 7 TAPERED CRICKETS TO ACHIEVE 1/4" PER FOOT SLOPE.

- GENERAL NOTES:**
1. INSPECT WOOD DECK AND CURBS TO REMAIN - NOTIFY ARCHITECT OF ROTTEN OR DAMAGED SUBSTRATE.



SPECIFICATIONS

1. THE GENERAL CONDITIONS OF THIS CONTRACT IS THE AMERICAN INSTITUTE OF ARCHITECTS (AIA)DOCUMENT A201-2007. "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION", INCLUDED BY REFERENCE, EXCEPT IN INSTANCES WHERE THE CITY INFORMATION FOR BIDDERS ADDRESS THE SAME SUBJECT MATTER.
2. REFER TO STRUCTURAL ANALYSIS REPORT REGARDING REQUIREMENTS AND MAXIMUM BUILDING ROOF CAPACITY.
3. CONTRACTOR TO OBTAIN PERMITS AND ARRANGE FOR THE SUBSEQUENT INSPECTIONS RELATED TO THE CONSTRUCTION.
4. KEEP DRIVEWAYS, ENTRANCES, AND SIDEWALKS CLEAR AT ALL TIMES. DO NOT USE THESE AREAS FOR PARKING OR STORAGE OF MATERIALS. SCHEDULE DELIVERIES TO MINIMIZE REQUIREMENTS FOR STORAGE OF MATERIALS.
5. MAINTAIN THE EXISTING BUILDING IN A WEATHER-TIGHT AND SECURE CONDITION THROUGHOUT CONSTRUCTION. REPAIR DAMAGES CAUSED BY CONSTRUCTION OPERATIONS. TAKE PRECAUTIONS NECESSARY TO PROTECT THE BUILDING AND OCCUPANTS DURING THE CONSTRUCTION PERIOD.
6. THE OWNER WILL OCCUPY ADJACENT SPACES WITHIN THE BUILDING DURING CONSTRUCTION. COOPERATE WITH THE OWNER TO MINIMIZE CONFLICTS AND FACILITATE OWNER USAGE. PERFORM THE WORK SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS.
7. DEMOLITION PROCESSES INVOLVING NOISE OR THAT DISTURB ADJACENT OCCUPIED AREAS SHALL BE COORDINATED WITH THE OWNER. PROVIDE 48 HOUR NOTICE PRIOR TO SHUTDOWN OR INTERRUPTION OF MECHANICAL / ELECTRICAL SERVICES TO ADJACENT SPACES.
8. CONTRACTORS TO COMPLY WITH THE OWNER'S SAFETY MANAGEMENT POLICIES AND PROCEDURES WITH REFERENCE TO INTERIM LIFE SAFETY MEASURES REQUIRED OF THE CONTRACTOR DURING CONSTRUCTION IS AVAILABLE UPON REQUEST.
9. CONTRACTOR SHALL EXAMINE THE PROJECT SITE TO BECOME FAMILIAR WITH EXISTING AND VISIBLE CONDITIONS PRIOR TO SUBMISSION OF BID.
10. THE REMOVAL, MODIFICATION, OR ABATEMENT OF EXISTING HAZARDOUS MATERIALS IS NOT PART OF THIS CONTRACT. CONTRACTOR TO IMMEDIATELY REPORT TO THE OWNER DISCOVERY OF HAZARDOUS MATERIAL AND SUSPEND WORK IN THE AFFECTED AREA.
11. SHOULD UNUSUAL OR UNEXPECTED CONDITIONS BE ENCOUNTERED NOTIFY THE ARCHITECT IMMEDIATELY BY TELEPHONE, AND IN WRITING WITHIN FIVE (5) WORKING DAYS.
12. DO NOT DISTURB OR DAMAGE AREAS NOT INDICATED TO BE DEMOLISHED UNLESS REQUIRED BY THE WORK. EXISTING STRUCTURAL SUPPORT WALLS OR COLUMNS SHALL NOT BE DISTURBED.
13. SUBMIT SHOP DRAWINGS INCLUDING TECHNICAL PRODUCT INFORMATION; INSTALLATION INSTRUCTIONS; AND ROOF MEMBRANE LAYOUT DRAWING.
14. DELIVER MATERIALS IN THE MANUFACTURER'S ORIGINAL, UNOPENED CONTAINERS LABELED WITH THE MANUFACTURER'S NAME, BRAND NAME, AND INSTRUCTIONS.
15. 20 YEAR TOTAL SYSTEM WARRANTY WITH EXTENDED WIND UP LIFT COVERAGE; WIND SPEED 90 MPH.
16. PERFORM SELECTIVE DEMOLITION IN A SYSTEMATIC MANNER; PROTECT EXISTING FINISH WORK TO REMAIN IN PLACE THAT BECOMES EXPOSED DURING DEMOLITION OPERATIONS. RECYCLE REMOVED MATERIALS TO THE GREATEST EXTENT POSSIBLE. REMOVE ONLY THE AMOUNT OF EXISTING ROOFING THAT CAN BE INSTALLED BY THE DAY'S WORK.
17. PROVIDE MISCELLANEOUS BLOCKING, NAILERS, GROUNDS AND FRAMING; CUT AND SHAPE TO THE REQUIRED SIZE. STRUCTURAL GRADE NO. 2 OR BETTER; SOUTHERN PINE, DOUGLAS FIR OR EXTERIOR GRADE PLYWOOD.
18. MEMBRANE ROOFING; 60 MIL THICK NON-REINFORCED EPDM, CARLISLE SYNTEC SURE SEAL (WHITE); FIRESTONE RUBBER GUARD ECO WHITE, VERSICO WHITE OR EQUIVALENT. EPDM MEMBRANE FULLY ADHERED TO SUBSTRATE.
19. ROOF INSULATION CLOSED CELL POLYISOCYAURATE FOAM CORE INSULATION BOARDS FACED WITH FIBER REINFORCED FACER MINIMUM R 6.5 PER INCH, NOMINAL 2 INCH THICKNESS, ROOFING MANUFACTURER'S STANDARD. INSULATION SHALL BE ATTACHED BY SOLID MOPPING OF HOT ASPHALT AS PRESCRIBED BY MANUFACTURER.
20. GLASS MAT ROOF BOARD TO BE GEORGIA-PACIFIC DENS DECK ROOF BOARD, USG SECUROCK, OR EQUIVALENT.
21. METAL FLASHING, EDGE METAL, COPINGS TO BE FABRICATED FROM 22 GA STEEL WITH KYNAR FINISH TO MATCH EXISTING; ROLL COM. VINCENT, PETERSON OR EQUIVALENT. FASTENED TO PREVENT THE METAL FROM PULLING FREE OR BUCKLING; SEALED TO PREVENT MOISTURE FROM ENTERING THE ROOFING SYSTEM.



Structural and Forensic Engineering Services

March 6, 2015

Mr. Bill Scalzo
Scalzo Architects
1901 South Street
Duluth, Minnesota 55812

Re: City of Duluth Fire Hall #4 Building- Roof Capacity Review
NCE Job No.: 15-107

Dear Bill:

We have reviewed the structural capacity of the existing roof framing systems at the City of Duluth Fire Hall #4 building located at 425 West College Street in Duluth, Minnesota. There are two roof areas on this building, an upper and lower roof area.

The roof area over the garage is higher than the roof area over the living quarters/office area. Therefore, there is a potential for drifting snow load on the lower roof area due to the high/low roof condition. Based on our site visit the existing lower roof area roof system consists of an adhered EPDM roof membrane. We assume the EPDM membrane is over isocyanurate insulation on top of the existing pre-cast concrete plank. The thickness of the insulation was not determined at the time of our site visit due to winter conditions. The upper roof area roof system consists of a pitch and gravel roof system. The roof areas are structurally sloped for drainage.

For both roof areas the existing roof framing system consists of 12" deep pre-cast concrete plank. The pre-cast concrete plank spans an approximate distance of 37'-0" for the lower roof area and 39'-0" for the upper roof area between masonry bearing walls. No ceiling lining was present in the garage area. The ceiling lining in the living quarters/office area consists of acoustic tile.

Original building structural drawings could not be located at the time of our site visit therefore the reinforcing strand size and spacing in the existing pre-cast plank could not be determined for our analysis. Without this information an exact live load capacity for the pre-cast plank cannot be calculated. However, based on PCI load tables the minimum reinforced 12" pre-cast plank has a live (snow) load capacity of 60 pounds per square foot (psf) for the upper roof and 65 psf for the lower roof. This capacity exceeds the 42 psf live load requirement for the upper roof area based on the current Minnesota State Building Code. The lower roof live load capacity does not meet the 100 psf drifting snow load we calculated for the lower roof area based on the current Minnesota State Building Code.

It is our professional opinion that the new roof system for the upper and lower roof areas on this building can match the existing roof system composition. An adhered EPDM membrane can be installed on the upper roof area to replace the pitch and gravel roof system. Since we have to assume that the lower roof area does not meet the required drifting snow load, the R-value of the new roof system on the lower roof cannot be increased over the existing roof R-value.

Sincerely yours,

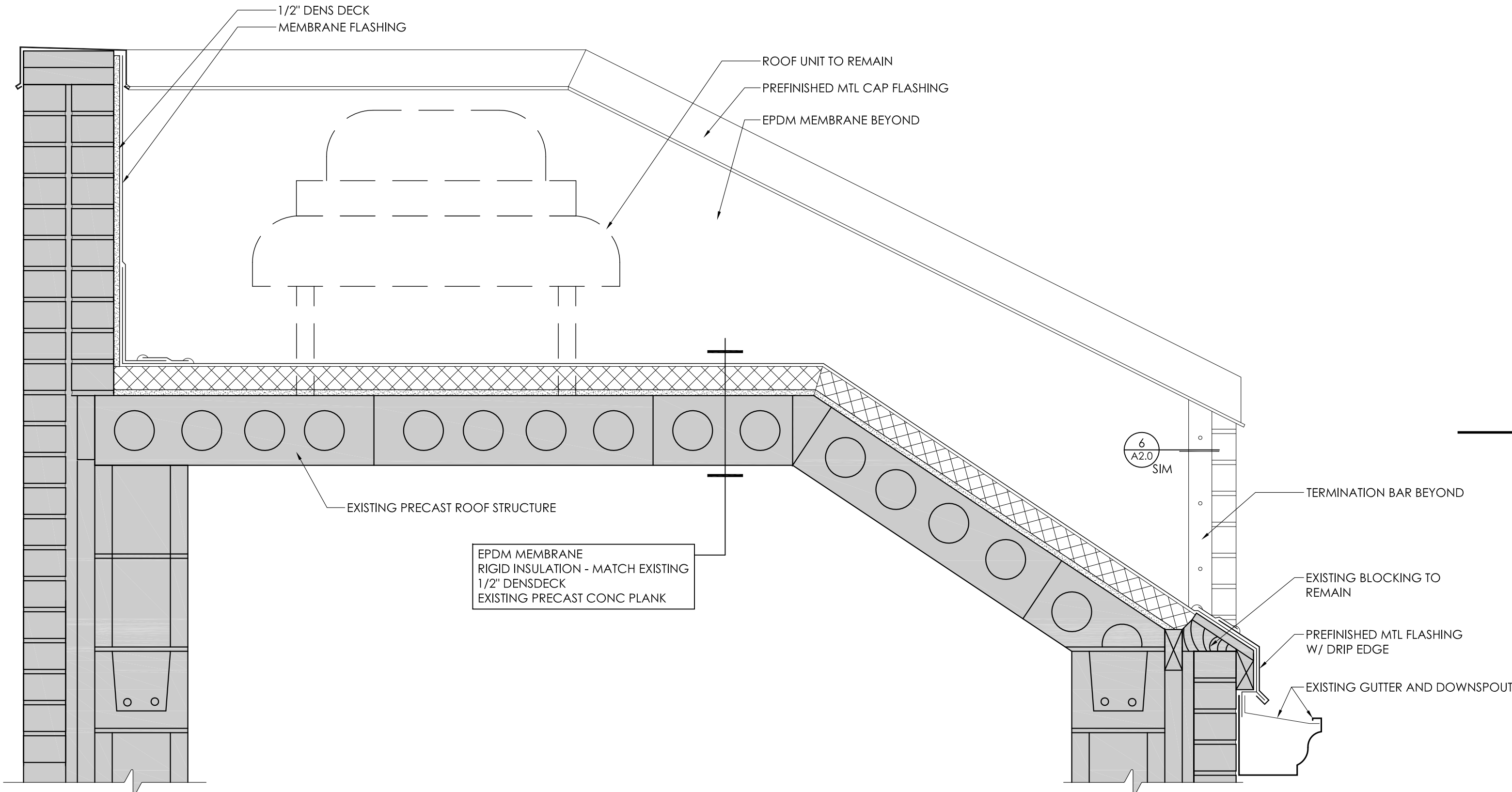
Mark R. Udd
Mark R. Udd, P.E.
Partner

Professional Certification:

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Mark R. Udd 03-06-2015
Mark R. Udd, P.E. Date
MN Reg. No. 40443

102 S. 21st Avenue West, Suite One, Duluth, Minnesota 55806, voice (218) 727-5995, fax (218) 727-7779



1
A3.0
HOSE TOWER ROOF
1'-1/2"=1'-0"



SCALZO ARCHITECTS, LTD.

1901 South Street
Duluth, Minnesota 55812

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the State of Minnesota.

William B. Scalzo
WILLIAM B. SCALZO

DATE: MARCH 6, 2015

LICENSE NO: 18130



Structural, Civil and Forensic Engineering Services

102 South 21st Ave. West Suite #1
Duluth, Mn. 55806-2016
Voice: (218)727-5995
Fax: (218)727-7779
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PROJECT:

**FIRE HALL 4
ROOF REPLACEMENT**
425 WEST COLLEGE STREET
DULUTH, MINNESOTA 55812



OWNER:
CITY OF DULUTH
PROPERTY & FACILITIES MGMT
1532 W MICHIGAN STREET
DULUTH, MINNESOTA 55806

SPECIFICATIONS

REVISIONS:

DATE: MARCH 6, 2015

DRAWN: TJB

CHECKED: WBS

PROJECT: 1511

0 2"
FULL SCALE

SHEET NO.

A3.0